

XV.—*Observations on some Species of Coccidæ of the Genus Ceroplastes in the Collection of the British Museum.* By E. ERNEST GREEN, F.E.S.

[Plate IV.]

IN the collection of the British Museum at South Kensington are specimens of a large *Ceroplastes* recently received from Cape Colony. Other examples were subsequently received from Egypt, through the Royal Gardens, Kew. In size and external appearance these insects may be readily mistaken for *Ceroplastes ceriferus*, Anders. There is the same coating of dense whitish wax of irregular form, and the individuals are similarly massed upon the twigs of the plants. But after removal of the waxy coat the form of the insect itself is found to differ completely from that of *ceriferus*. The accompanying figures will best show the distinguishing characters. In *C. ceriferus* (Pl. IV. figs. 3, 3*a*) the anal aperture is at the extremity of a long chitinous horn-like extension of the abdomen, while in the species from the Cape this part is mounted on a short chitinous tubercle (figs. 1, 1*a*, 1*b*).

The species, which appears to be new, is here described under the name of

Ceroplastes africanus, sp. n. (Pl. IV. figs. 1–1*f*.)

Insects crowded on the stems of the plant (fig. 1), so much so that the waxy covering of adjacent individuals becomes more or less confluent and the normal form of the test is difficult to determine. The tests appear as rounded masses of cream-coloured wax, each with a more or less distinct nipple-like prominence at the apex bearing a small spot of whiter substance.

The usual opaque white bands from the spiracular regions are present, but very inconspicuous, scarcely extending beyond the margin. In some specimens a series of impressed arches on the sides of the test marks the position of the marginal plates. The waxy coating being thinner on the impressed parts, the arches appear darker, the colour of the body of the insect showing through the covering-matter. An isolated test averages 7·75 millim. long, 6·50 millim. broad, 5·75 millim. high.

Female, denuded of wax (figs. 1, 1*a*, 1*b*), reddish brown to dark brown, the whole surface strongly chitinized; irregularly globose; apex often with an oblong scar corresponding

with the position of the early larval pellicle, but which becomes almost obliterated in the oldest examples. In the early adult the median is separated from the marginal area by a more or less distinct furrow, which is particularly marked where it meets the anal tubercle (fig. 1 *a*). In the older examples only this hinder part of the furrow remains (fig. 1 *c*). Cephalic area constricted off from the globose body, forming a trowel-shaped projection in front. Spiracular clefts deeply indented, thickly set with small conical spines, not constricted at the base (fig. 1 *d*). Marginal hairs very small, few and inconspicuous. Anal scales minute, inner edge straight, base and outer edge together forming a semicircle. Anal tubercle blackish, directed upwards. Derm with numerous glandular pores, which are more distinct on the darker marginal area. Antennæ with either 7 or 8 joints. It is difficult to say which is the normal number, as the two varieties are about equally represented in the series under examination. With the 8-jointed form (fig. 1 *e*) the formula runs:—3, (1, 2), 8, 4, 5, (6, 7). When there are seven joints only (fig. 1 *f*) the formula is 3, (1, 2, 4), 7, (5, 6). In this latter case there is a tendency for the fourth joint to separate into two, and there is always a more or less distinct false joint in the terminal segment. Legs well developed; tarsus more than half length of tibia. Foot with 4 digitules, the unguals broadly spatulate, the tarsals fine knobbed hairs.

Length of fully developed female 5·50 millim., breadth 5·0 millim., height 4·25 millim.

The male insect is unknown in any stage.

Hab. On *Acacia*, sp., Kleinpoort, Eastern Karoo, Cape Colony. Collected by Miss Anna Howarth.

The comparatively large number of joints in the antennæ of this species is remarkable. Even the number 7 is abnormal in the genus *Ceroplastes*, nearly all the known species having 6-jointed antennæ. I believe the only exception (besides the present insect) is that of *C. neri*, described by Mr. Newstead, from Algeria. This character might have been considered a peculiarity of the African members of the genus had not Mr. Newstead also described a *Ceroplastes personatus* with 6-jointed antennæ, from Lagos, West Africa.

The wax, which in fresh examples is soft and easily soluble in benzole, in dried specimens becomes very hard and dense, and seems scarcely, if at all, affected by benzole. If it could be collected in sufficient quantities, the wax might prove of economic value. The waxy matter of the Indian species (*C. ceriferus*) is said to have been tested and found to contain too much water for use as an illuminant; but this fault could probably be remedied by proper preparation.

Examples from Egypt, also occurring on a species of *Acacia*, agree with those from the Cape in general appearance and structure, including the characters of the anal tubercle and stigmatic clefts. They are not in sufficiently good condition to allow of a critical examination of the antennæ.

Ceroplastes africanus, var. *cristatus*, nov.
(Pl. IV. fig. 2.)

There are in the collection examples from Natal, labelled "Giam Insect Wax," differing from the type only in the presence of a small dorsal crest corresponding to the position of the central scar described above. These examples are larger than either the Egyptian specimens or those from the Cape, and may be distinguished by the varietal name *cristatus*. The waxy test has a diameter of 12 millim. The denuded female measures 6 millim. long, 5.25 millim. broad, and 4.25 millim. high.

Ceroplastes ceriferus, Anderson.
(Pl. IV. figs. 3-3 b.)

The original description of *ceriferus* by Anderson deals with the external characters of the insect only. Maskell points out (Trans. N. Z. Instit. 1893, p. 216, pl. xii. figs. 13, 16) that the anal scales in this species are situated on a horn-like process. I have noticed this peculiar character in typical examples from India and Ceylon (see figs. 3, 3 a of the accompanying Plate). Maskell goes on to remark that this feature, together with the structure of the spiracular spines, which he figures as sharply constricted at the base, leads him to the conclusion that *C. Fairmairii* of Targioni is identical with *ceriferus* of Anderson, the latter name having precedence. Signoret figures *Fairmairii* on plate 7 (ix.), fig. 7, of his 'Essai,' and shows the conical spiracular spines as mounted on short pedicels, a character which is said to occur also in *Vinsonii*, Sign. But in *ceriferus* I am convinced that the spines are properly sessile and that the appearance of a pedicel is unreal, being produced by the subcutaneous tube leading inwards from the spine (*vide* fig. 3 b). These tubes accompany the stigmatic spines in all the species, but are more prominent in some than in others; their distinctness is also affected both by the age of the individual under examination and by the method of preparation.

Until typical examples of *Fairmairii* have been critically examined the two species should be retained.

Ceroplastes floridensis, Comstock.

Comstock, in his Annual Report for 1880, p. 331, mentions that his species *C. floridensis* carries similar arrow-shaped tubercles (or stigmatic spines). I have examined the common Ceylonese species, which (on the authority of Dr. L. O. Howard) I have placed under *C. floridensis*, and find that the arrow-shaped appearance of the spines is here also deceptive, and that they are really sessile with a subcutaneous connecting-tube.

Ceroplastes australiæ, Walk. (Pl. IV. fig. 4.)

Ceroplastes australiæ, Walk. List of Homopt. in Brit. Mus. iv. (1852) p. 1087.

Specimens in the Museum collection, labelled "*australiæ*, Walk.," when denuded of their waxy covering exhibit the long anal process and all the other characters of *C. ceriferus*. The waxy test is thick and irregular in form. These examples are very small (the tests only 3.50 millim. long, and the denuded insect 2.25 millim.), but they are immature, and I have little hesitation in asserting that they are young examples of *ceriferus*. The anal tubercle is very prominent (see fig. 4), standing up like the spout of a tea-pot.

Other unnamed examples from the B. M., labelled only "Sydney," are similarly immature examples of *ceriferus*.

Ceroplastes chilensis, Gray.

Some specimens labelled *chilensis*, Gray, also appear to me to be immature examples of *ceriferus*. I am informed by Mr. C. O. Waterhouse that these are the type specimens described by J. E. Gray in 'Spicilegia Zoologica.' Signoret, in his 'Essai' (pl. vii. fig. 5), gives a figure of *chilensis* in which the test is represented with a series of well-defined marginal plates. The examples under examination have an irregular homogeneous waxy test, as in typical *ceriferus*. The denuded insect shows the long horn-like anal tubercle. The body is deeply cleft in front, but this is merely an accident due to its position on a very thin twig, causing the lateral margins of the body to grow round and embrace the support.

With regard to the locality, Mr. Waterhouse writes me as follows:—"Gray, at the end of his description, says the specimens were found by Mrs. Graham during her residence in the Brazils and Chili [he refers to *chilensis* and *janáirensis*]. The locality is probably correct, but I can find no mention of

either in this lady's book. I note, however, that she had been in India and Ceylon." It seems just possible, therefore, that these specimens may have been really collected in India and wrongly ascribed to South America.

EXPLANATION OF PLATE IV.

- Fig. 1. Waxy tests of *C. africanus* from Cape Colony *in situ* on twig of *Acacia* (nat. size).
 Fig. 1 a. Female insect denuded of wax. Dorsal view (enlarged).
 Fig. 1 b. Ditto. Side view (enlarged).
 Fig. 1 c. Ditto. Older example.
 Fig. 1 d. Ditto. Stigmatic cleft and spines.
 Fig. 1 e. Ditto. Antenna with eight joints.
 Fig. 1 f. Ditto. Antenna with seven joints.
 Fig. 2. *C. africanus*, var. *cristatus*, from Natal, denuded of wax.
 Fig. 3. *C. ceriferus*, from Ceylon, denuded of wax. Dorsal view.
 Fig. 3 a. Ditto. Side view.
 Fig. 3 b. Ditto. Stigmatic spines.
 Fig. 4. *C. australiæ* (= *C. ceriferus*, juv.).

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XVI.—*Further Contribution towards a Check-list of the non-Marine Molluscan Fauna of South Africa, with Descriptions of Fourteen new Species.* By JAMES COSMO MELVILL, M.A., F.L.S., and JOHN HENRY PONSONBY.

[Plate III.]

IN December 1898 we published a first "contribution"*, which was shortly afterwards followed by Dr. Sturany's 'Catalog' †, thanks to which excellent work and to information from other sources we are enabled to make various additions to our original list. We have also received fresh material from several friends in South Africa, with the result that fourteen new species (many of them, as will be seen, of peculiar interest) are described in this paper.

Addenda et Corrigenda.

(The pages quoted are those of our above-mentioned Check-list.)

N.B.—The asterisk denotes that we have not seen those shells to the names of which it is prefixed.

Page 171. Add *Helicarion leucospira*, Pfr. (*Vitrina*) Proc. Zool. Soc. 1856, p. 326; Rve. Conch. Icon. fig. 21.—*Hab.* Natal (*cf.* Cox, Mon. Austr. pl. xiv. fig. 6).

* Proc. Mal. Soc. vol. iii. p. 166.

† 'Catalog Südafrik. Land- und Süßwasser Moll.' (Wien, 1898).